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ON
CERTAIN FOREIGN BODIES
EMBEDDED IN THE TISSUES WITHOUT PRODUCING
INFLAMMATORY SYMPTOMS;

WITH REMARKS ON THE
ALLEGED TRANSIT OF NEEDLES, &c., FROM THE STOMACH
TO THE INTEGUMENT.

BY
ALBAN DORAN.

It is generally admitted that needles, pins, and other solid inorganic bodies may remain in the flesh, muscles, or even in the viscera of man, without setting up any of the various well-known pathological changes that might be expected under such circumstances. They generally enter the body by a wound in the integument through which a little atmospheric air must be admitted; this, together with the presence of an apparently irritant extraneous substance, at first sight represents a somewhat serious complication. Moreover, the wound itself is of the punctured class, by no means the mildest variety of external injury, as has long been admitted by authorities and taught in educational works on surgery.

Yet the difference between theoretical prognosis and the results of practical observation is in no branch of surgery better illustrated than in this subject, since it is well known that none of the results to be expected, in the conditions above referred to, necessarily follow the impaction of certain foreign bodies in living tissues, at least when such bodies do not interfere with the functions of any important organ.

Most of the systematic works on surgery assert, in general
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terms, the immunity from inflammation observed in these injuries, without citing any particular case to the point; and while instances of hysteria, where the patient has inserted needles under the flesh, are recorded as a rule to illustrate the peculiar tendencies of hysterical subjects, examples of accidental impaction of similar substances are, on the other hand, generally related to illustrate not so much their effects, as the manner by which they have been removed through the skill of the surgeon. My object is, firstly, to consider the small amount of mischief which such bodies may inflict on the structures they pass through, illustrating the fact by actual cases collected for the purpose. Secondly, I will demonstrate, from recorded cases, that, recognised as the above fact is, it is the exception and not the rule; in other words, needles and similar foreign bodies generally induce inflammatory swelling and subsequent suppuration. Lastly, I will make some remarks on cases where certain sharp substances have been said to travel through the walls of the stomach or intestines and appear under the integuments, a phenomenon associated with the questions under discussion.

I base this memoir on a case that was under my own care a few years ago, where I closely observed the affected part, from a few hours after the injury till recovery, and failed to find a trace of any inflammatory symptom in the vicinity of the impaction of three foreign bodies of considerable size. I will not consider any of those examples where bullets and similar substances have remained in the organs or tissues of patients for years after having become encysted, as that implies at once a morbid process; most interesting, it is true, as illustrating the often-repeated fact that pathological changes are, on the whole, carried on for a salutary end, though circumstances may cause them to miss their object and terminate in disaster to the organism. The circumstances, in the above particular cases which I now dismiss, are attacks of constitutional disease or local external injuries in the neighbourhood of the cyst, which cause it to inflame in a lower type of inflammation than previously occurred when the irritation of the body produced the cyst itself. But here such conditions must be reckoned as simply a possible *result* in the class of cases to which I desire to draw attention, and as one reason why surgical interference is justifiable, though at first it might seem best to leave well alone.

My own case may be detailed as follows:—

On April 23, 1873, K. M., aged 16, a thin, ill-nourished maid-of-all-work, applied to me for relief in the Surgery of St. Bartholomew's Hospital, where I was at that period holding the appointment of house-surgeon. She complained that, in fall-

ing down a flight of stairs half an hour before, her right arm had struck a three-pronged fork, which ran deeply into the flesh. On extracting it, one prong was found entirely and the others partially broken off. I found three punctured wounds on the outer side of the patient's right arm a little below the insertion of the deltoid, but I could not at the time detect any foreign body in the wound, and water-dressing was applied over the punctures.

On May 2d the patient came a second time into the Surgery, and I found the three wounds almost healed; but on the inner side of the right arm, internal to the biceps and a little lower than the external punctures, a sharp projection could be detected under the skin. There was absolutely no tenderness nor sign of hardness or fluctuation around the foreign body which caused the projection. I cut down upon it, and extracted with a pair of dressing-forceps one of the missing prongs, $1\frac{3}{4}$ inch in length. Not a drop of pus or serum oozed from the wound, which I covered with a pad of wet lint; it healed by the first intention.

On May 6th, in my absence, Mr. Taylor removed a second prong; he could not detect any sign of inflammation in its track.

On May the 9th I saw the patient once more, and could feel the third prong projecting under the skin, in precisely the same manner as did the first and second, and with an equal absence of any signs of plastic or suppurative inflammation. This I extracted without any difficulty, and applied water-dressing as before. The last two wounds healed in a few days, like the first. The girl, contrary to my advice, had been using her arm freely in her domestic duties before the extraction of the prongs, and had never felt painful sensations of any kind. She was in a feeble state of health when under my treatment.

A case was under the care of Mr. Marrant Baker in 1872, which has already been made public.¹ A young girl injured her knee by a fall; it was poulticed, and after a day or two a needle was found protruding over the patella; in a fortnight five more were removed from the same region, and within a few months later her medical attendant, Mr. Wicksteed of Walthamstow, removed 101 needles and pins, many of large size, deeply embedded. In St. Bartholomew's Hospital, Mr. Baker and Dr. G. Bagot Ferguson removed ten needles and pins. It is a significant fact that all the latter had been deprived of their heads. Other circumstances favoured the suspicion of hysterical deception.²

¹ *Lancet*, July 20, 1872.

² In searching numerous records where hysterical women have swallowed or thrust into their skin numbers of pins and needles, I find that in most cases

I refer to the above case, because Mr. Baker has informed me that no sign of any form of inflammation could be detected along the track of any of the needles. This and the first example are the only instances that I have seen, in my own experience, where similar foreign bodies have failed to cause pathological changes.

In the Catalogue of the Pathological Series, Museum of the Royal College of Surgeons, in reference to specimen 68, we find it described as 'a hundred needles of various sizes, and most of them entire, which were extracted from the body of a Danish Jewess.' Then follows a long description of the case, which was under the care of Dr. Herholdt, and is well known in the annals of surgery. In twelve months 273 needles of different sizes were extracted, through incisions, from various parts of the body. The patient would complain of great pain, and Dr. Herholdt would forthwith separate considerable portions of the skin of the tender part from the deeper tissues and search for the needles, which he would then extract. It may be presumed that there was no inflammation around the needles, the pain being probably caused by pressure against nerves, since in the record of this same case I find that it is carefully noted that over a hundred needles were removed from the neighbourhood of a very large tumour in the axilla, and the first needle of all extracted was also surrounded by a tumour, which when cut bled without any pus escaping. These 'tumours' were evidently from inflammatory effusion.

But on searching various archives of surgery, I find that instances where it is definitely recorded that no inflammation has been set up by the presence of these bodies are very rare.

The late Professor Partridge read before the Pathological Society¹ a case where Dr. Orwin had removed from underneath the skin on the inner side of the calf of a child an entire crochet-needle $2\frac{1}{4}$ inches long. 'There had been no lameness, and neither suppuration or pain indicated its presence.' Here one may reasonably presume that simple non-suppurative inflammation was also absent, since the pressure of the needle against inflamed surrounding tissues could hardly have failed to produce pain.

A very interesting case is recorded by Dr. Noë of Ehrenfeld.² He removed from the forearm of a tradesman a piece of a knife

the patients have not only given no motives for their eccentricity, but have stoutly denied any knowledge as to how the foreign bodies entered their system. On the other hand, a Jewish girl ran a number of pins under the skin of her arm, avowedly as a self-inflicted penance after dreaming that the spectre of her grandmother had reproved her for working on the Sabbath (Hager, *Die fremden Körper im Menschen*. Vienna, 1844).

¹ Trans. Path. Soc., 1853-54.

² Berliner Klinische Wochenschrift, 1868. |

measuring 6 centimetres in length by $1\frac{1}{2}$ broad; it had remained in his arm forty-six days without any sign of inflammation. 'In this case it is much to be wondered at,' justly remarks Dr. Noë, 'that this relatively very large foreign body should have excited no inflammatory phenomena during its forty-six days' occupation of the interosseous space, yet some one or other of the muscles must have been penetrated by it—the pronator quadratus and interosseous ligament were so most assuredly.'

In Hager's work¹ I find a case where a needle was extracted from under the skin of the back of a boy. 'No pus had formed around it, and nobody knew how it came there.' Campbell² removed a needle from under the skin of a woman; there was not a trace of pus, *but a painful swelling*. This latter condition puts it out of the present category.

Hager also gives an instance where an imbecile girl put seven pins under the skin of her arm through a venesection-wound. Five were dissected out. The condition of the tissues around them is not recorded, but the two remaining pins 'caused no pain, and did not hinder either the movements or the free use of the arm.' Here, then, there was presumably no inflammation.

A soldier ran a piece of glass 'the size and thickness of a groschen' into the sole of his foot. It remained twelve years there, and he could stand and march all the time without feeling any pain. At the end of that period suppuration was set up around the foreign body, after the patient had been mounting guard in wet weather.³

I cannot find any more cases where there is direct or presumable evidence of foreign bodies remaining in the tissues without causing inflammation, though the above examples afford satisfactory evidence that such *may* be the case. On the other hand, it is most certain that in the vast majority of patients foreign bodies rapidly set up inflammatory symptoms, generally of a suppurative type. This is the case even with needles and pins, in whatever way they may have entered the system.

In several of the cases already given, some out of many foreign bodies introduced into the same patient have set up tumefaction and suppuration. In one example presently to be again referred to, under Mr. (now Sir Henry) Thompson,⁴ the pins found under the skin 'were enclosed in small superficial abscesses.' Before one pin was extracted at the wrist the patient 'felt pain first of the shoulder, and traced its passage along the outer margin at

¹ *Op. jam cit.*

² Duncan's Medical Commentaries for the Year 1783-84. London, 1785.

³ Weitz, Neue Auszüge aus Dissertationen, vol. ii. p. 194. But here the glass was probably encapsuled.

⁴ Trans. Path. Soc., 1853-54.

the biceps musele by a red slender line, although she could never feel the pin itself.'

In another instance Fischer found a needle in an *abscess* over the tibia.¹

Referring again to Hager's work, I find that in ten out of twenty cases of small foreign bodies lodging under the skin, evidence of inflammation is distinctly recorded. In six of the remainder nothing is said on the subject; in four the evidence of complete absence of inflammatory symptoms is tolerably clear. This includes Noë's, Duncan's, and Weitz's cases, and the instance where a needle was extracted from the arm of a boy, already quoted here direct from Hager's treatise. In every record of alleged travelling of pins, &c., from the alimentary canal to the surface, some at least of those bodies have been removed from superficial abscesses. Larger foreign bodies almost always excite suppuration.

I have already referred to the subject mentioned at the end of the last paragraph, and it is hardly out of place here to discuss it briefly; for many surgeons are prudently sceptical, and a collection of instances of actual transit of needles or pins to the subcutaneous tissue from the stomach or intestine may be acceptable to such truly scientific doubters. In most of these cases it is necessary to bear in mind the words of Mr. Pollock: 'The peculiar impulses of an hysterical mind occasionally induce a female to practise an amount of deception towards the medical attendant, which may induce him, on the first view of the case, to take for granted that which, upon careful investigation, would turn out to be fictitious.'²

Then, again, well-known examples are recorded where pins and needles have been swallowed, and retained for a long while in the stomach or intestines, not a single one out of their number ever appearing near the surface.

Firstly, there is Mr. Marshall's case,³ where a pound of pins were found in the duodenum and 9 ounces in the stomach of a woman who during lifetime had suffered from various symptoms of gastric irritation. Not one pin or needle was found under the integuments.

Hager⁴ records the fact that a young Polish lady carried for five months in her stomach twenty iron nails, seven iron sash-bolts, one hundred and one pins, two paternoster beads, and all sorts of rubbish besides, but not one worked its way to the surface. In Mr. Marshall's case, where, too, a great number of

¹ Virchow und Hirsch, Jahresbericht der Medicin, 1866, Fischer's case.

² Holmes' System of Surgery, 2d ed., article 'Injuries of the Abdomen.'

³ Med.-Chirurg. Trans., 1852, p. 65.

⁴ Op. jam cit.

pins were swallowed, the coats of the stomach were found extremely hypertrophied.¹ Possibly the same occurred in the Polish girl, and thus the transit of the pins and nails would be resisted. Instances are well known where small bodies have lodged in the cæcum and colon, and set up serious or even fatal results, without one of them reaching the abdominal parietes.

But however much we may doubt that an hysterical subject has swallowed pins and needles, there is no reason why, if such articles have once entered the stomach, they should not find their way to the surface. Accumulations in the cæcum set up irritation which often ends in abscess opening in the iliac fossa, and through it the foreign body or bodies may be discharged; or intestine irritated in the same manner may become thickened and immediately adherent to the abdominal walls,² an extraneous substance could then escape all the more readily. Now the same may reasonably be expected to occur when the foreign bodies are not fruit-stones or like indigestible portions of articles of food, but pins or similar inorganic bodies, whether lodged in the intestines or not lower down the alimentary canal than in the stomach.

By far the most authentic case of pins passing from the alimentary canal to the surface is that, already referred to, which was read before the Pathological Society in March 1854 by Sir Henry Thompson. The history is carefully recorded. There seems to have been no suspicion of hysteria; for the fact that the patient was 'aged 26, a tolerably healthy-looking servant-girl,' is in itself hardly sufficient evidence of the existence of that malady; and the coincident appearance of gastric symptoms and superficial abscesses containing pins corroborates the belief that the latter passed from the stomach or intestines to the subcutaneous cellular tissue.

The patient, being engaged in taking down linen from a clothes-line, had put a number of pins into her mouth, when a person seized her suddenly from behind 'for fun,' and she immediately bolted all the pins. 'She felt no alarm about the accident,' but, a week later, felt a pain beneath the left lower ribs which lasted twelve months, when a pin was drawn from a red swelling in her left breast; two more *headless* pins were soon afterwards removed from the same part. During the subsequent four years, nineteen more pins came to the surface, and

¹ See specimen 1141 B, Pathological Series, Royal College of Surgeons; also 1141 C and D, which consist of the pins found in the stomach, and of some more found in the patient's bed, 'bent as if prepared to be swallowed.' The pins are not headless, as in Sir Henry Thompson's and Mr. Baker's cases.

² See Path. Catalogue, Royal Coll. Surg., vol. iii.; history of spec. 1185.

she suffered all this time from severe pains in the left side ; but at the end of that period vomiting and hæmorrhage set in, and she threw up, after two months' persistence of those symptoms, *several pins' heads* on different days. The pins were removed 'in every case but one, from small superficial abscesses,' by Mr. Jones of Tenby.

This, I repeat, is decidedly the most authentic case of the kind on record, at least as far as my own researches in medical literature have extended. There can be no doubt that the patient swallowed the pins ; the accident at the time did not alarm her, but her master at once, we are told, solicited medical relief. The pain a week later about the left hypochondrium must have been due to gastric irritation, and it continued for twelve months, during which period no pins appeared under the integuments. In the meantime, it may be fairly presumed, the coats of the stomach not only became hypertrophied as in Mr. Marshall's case, but also adherent to the walls of the abdomen. The projection of one single pin's point from the anterior aspect of the stomach so as to scratch the tissues of the opposed parietes would readily set up adhesive inflammation without necessarily causing widespread peritonitis. By muscular movements the pins might be readily shifted to under the left breast, or still farther, after a lapse of time. The greater number of pins afterwards removed were found under the integuments near the left breast.

Still it must be admitted even in this case that a sceptical surgeon might assert with much reason that though the evidence of the swallowing of the pins is perfectly trustworthy, it does not follow that the pins found under the integument were the same as those which had entered the stomach. The belief that pins and needles may travel from the stomach to the surface, much as it is doubted by competent professional observers, is almost universally believed among the lower classes in this country, and the patient in this case having heard of alleged instances of this phenomenon may have desired to make herself an object of interest by secretly inserting pins under her skin to make those about her believe they had really passed there from the alimentary canal. One very suspicious point is the fact that nearly all the pins had lost their heads, as in Mr. Baker's case already recorded, as if the patient had nipped them off to facilitate the passing of the entire shank under the cutis. The suspicion is heightened when we find that the patient afterwards vomited a number of pin's heads. This looks as if she thought (supposing her to be a malingerer) that she would be less suspected if she returned some of the pins from the stomach by the mouth ; but finding that they did not return, and being afraid

of swallowing any more entire with their sharp points, she had adopted the ingenious expedient of swallowing the heads alone. Among the great number of pins found in the stomach of Mr. Marshall's case, and preserved in a glass bottle in the Museum of the Royal College of Surgeons (1141 C), I cannot find one with the head broken off, though a great number are broken through the middle of the shank, as is one which was found in the patient's bed with several others entire but bent. The angle between the side of the head of an English pin and its shank is too wide to form a deep rim in which more gastric juice could collect than over the surface of the rest of the pin, and thus eat the head off; moreover, the shank is at its thickest, and never constricted, at that point. In specimen 1141 C, alluded to above, I cannot detect one pin where the head is undermined by the action of the gastric juice, nor even so much as a trace of any such action between the head and the shank more than over the remainder of the entire foreign body, though many of these articles had been over seven years in the patient's stomach.

But the above case is much less doubtful than any other I can find. Some surgeons might adopt a middle opinion, and agree that the first pin found its way to the left breast as a '*bona-fide traveller*' from the stomach, whilst the remainder, or all those found far from the left hypochondrium, were inserted under the skin by the patient. I have failed in finding nearly so satisfactory evidence in any other case where the same conditions have been alleged to exist.

In Hager's work one instance is noted where a girl, aged 25, and addicted to somnambulism, vomited and passed per anum a number of pins. Some were found under the skin, but in such situations as the inner angle of the left eye and the nape of the neck! He then gives many similar cases, and in a few the probability that some out of many needles passed from the alimentary canal is almost as great as in Sir H. Thompson's example. As for foreign bodies other than pins and needles, there is no doubt that, lodging in the cæcum, they have set up peri-cæcal abscesses, through which they have been discharged externally. Hager gives cases of needles being eliminated in the same way. As for those which he asserts have been discharged, not from the right iliac region or right groin, as usual, but from the umbilical region, they probably came direct from some part of the colon rather than from the stomach. The substances most frequently so expelled are chicken-bones, fish-bones, fruit-stones, or ears of various cereals. In one case,¹ a needle, swal-

¹ Virchow und Hirsch, Jahresbericht, 1866.

lowed with a black thread attached, is alleged to have been found, thread and all, in an abscess over the tibia.

From the results, then, of clinical research into the subjects under discussion, it may be concluded—

1. That small inorganic foreign bodies *may* remain a considerable time in the tissues, more especially in connective tissue, without exciting any kind of inflammation; and hence without causing the formation of abscess, or becoming encapsuled.

2. That the above condition is nevertheless quite the exception—such small bodies exciting, as do larger ones, inflammation, almost invariably ending in the formation of abscess, or in rare cases terminating in the encapsulement of the same bodies.

3. That whilst it is admitted, on well-attested evidence, that bodies like plum-stones, ears of corn, &c., may be discharged externally from the cæcum and colon; on the other hand, satisfactory proof that articles like needles and pins have been discharged from the stomach or intestines, and travelled under the integuments, far from the abdomen, is still much needed.

4. That one thing is certain—namely, the fact that several cases are known where numbers of pins or needles have been swallowed wilfully or accidentally, and have remained months or years in the stomach, exciting various serious symptoms, without one of the same bodies ever finding its way to the integument.

5. That a few cases exist—more especially one instance, already dwelt upon—where it is known that pins or needles have been swallowed, and where similar bodies have been found in abscesses or swellings as near to the stomach as the under side of the left breast, affording strong presumptive evidence that they are some of the same that have been swallowed.

6. That in cases where it is alleged that such bodies, after being swallowed, have travelled under the skin as far as to the extremities, we generally find strong proof of malingering, and not unfrequently absolutely no proof that any pins or needles have been swallowed at all; and when foreign bodies are found in situations remote from the stomach, others appearing in its immediate vicinity, as noticed in the last paragraph, it is reasonable to believe that the former have been placed under the skin by deception on the part of the patient, who has found from practical experience that some of the articles swallowed have appeared under the integument in the neighbourhood of the stomach.

The line of treatment to be adopted when foreign bodies have been detected near the surface of any part of the trunk or extremities, is quite simple, and may be found in any text-book on surgery, together with the well-known rule concerning the avoid-

ance of purgatives after the swallowing of sharp or otherwise dangerous substances. The use of emetics in the latter cases need only be named to be condemned.

When it is known that a patient has swallowed a number of pins or needles, and similar articles begin to appear subcutaneously in the epigastric, left hypochondriac, or any region more remote from the stomach, a most efficient observation of all the actions of the patient day and night will be necessary; but even then the most experienced nurse may be baffled, for in such cases the patient seems to acquire what may be called a morbidly perfect faculty of deception—just as a delirious man exerts his force so as to produce effects which would be far above his power when in full health and perfect control of his muscular system. Many surgeons will in these instances be hardly satisfied of the actual transit of needles from the stomach to the surface, until by post-mortem examination they can find an adhesion of that viscus to the parietes, or a direct communication of the latter with the former through an abscess, one or more of the foreign bodies being actually found wholly or partially in the connecting medium. Even then, as I have before noticed, this will not prove that the needles found farther from the stomach have ever been in it; unless the surgeon can be sure that he has tracked a hard, long, and thin body under the integument from the site of adhesion, day by day, till he has himself removed it from under the skin of the thorax or extremities.

When a foreign body is detected near the surface, it should decidedly be removed at once, for fear of its doing any mischief. Methods for proving the suspected metallic nature of such a body through the agency of magnetism have been devised and suggested by Smeë¹ and Marshall. Such tests should be applied when a superficial abscess forms in a patient after needles have been extracted from the subcutaneous cellular tissue. If the presence of metal is indicated, but no needle found on opening the abscess, the latter should be left open for some time till the point of the needle appears within its cavity, or near it.

The usual practice is to dissect down to the point of the needle or pin, and then make use of the forceps. It is always better to adopt—especially when there are a great number of such substances to remove—the method employed by Dr. Judson B. Andrews when he had to extract 286 needles from an insane patient within five months. To use his own words:—

¹ On the Detection of Needles and other Steel Instruments impacted in the Human Body. By Alfred Smeë, F.R.S. Renshaw, 1845. See also Sir B. C. Brodie's case, reported in the '*Lancet*,' October 28, 1876; it was read before the Med.-Chir. Soc. on October 24th.

‘They were removed in a few instances at first by cutting down upon them. This proved to be a painful and, from the movements of the needles in the tissues, a difficult process. Hæmorrhage from the small vessels at times gave some trouble. Afterwards, by manipulation, the ends of the needles were engaged between the thumb and forefinger, and the points, forced through the skin, were seized and the needles extracted with forceps. Sometimes much force was required to withdraw them.’¹

One great advantage of Dr. Judson Andrews’ method is the avoidance of the formation of numerous cicatrices, which must result if the needles are dissected out. This is a great desideratum in hysterical subjects, where the presence of scars might open a fresh field for morbid contemplation on the part of the patient.

¹ American Journal of Insanity, 1872-73. ‘Case of excessive hypodermic use of morphia. Three hundred needles removed from the body of an insane woman.’ None of these were supposed to be swallowed or found in the stomach, and some ‘produced little local irritation or trouble beyond the pricking sensation.’